

CLAIMS

[cl001] 1. A curing light comprising:

- a wand adapted to be grasped by a human hand for use in positioning and manipulating the curing light,
- a wand housing that is at least a portion of the exterior surface of said wand, said wand housing having a top, a bottom, a left side and a right side,
- a light emission control actuator which when actuated causes light to be emitted from the curing light, said light emission control actuator being located on said wand housing top,
- an elongate heat sink with a proximal end and a distal end, said proximal end being proximate said wand, said elongate heat sink having a longitudinal axis, said elongate heat sink being located at least partially within said housing
- a mounting platform located at said elongate heat sink distal end, said mounting platform being adapted to have a LED chip module, said mounting platform being located in a position that is on the same side of the curing light as said bottom of said wand housing,
- an LED chip module mounted on said mounting platform, said LED chip module including
 - a primary heat sink, said primary heat sink having a smaller mass than said elongate heat sink,
 - a well on said primary heat sink for mounting an LED chip,
 - an LED chip mounted in said well,
 - a cover that provides protective covering for said LED chip and which permits light emitted by said LED chip to pass through it to provide usable light exiting from said light module,
 - said LED module being oriented to that light emitted by it is emitted generally from said wand housing bottom.

[cl002] 2. A curing light as recited in claim 1 wherein light emitted by said LED chip module is emitted at an angle of from about 30 degrees to about 150 degrees to said elongate heat sink longitudinal axis.

[cl003] 3. A curing light as recited in claim 1 wherein light emitted by said LED chip module is emitted at an angle of about 90 degrees to said elongate heat sink longitudinal axis.

[cl004] 4. A curing light comprising:
a housing having a top, a bottom, a left side and a right side,
a light emission control actuator which when actuated causes light to be emitted from the curing light, said light emission control actuator being located on said wand housing, said light emission control actuator being located on said housing top,
a secondary heat sink capable of assisting in heat dissipation,
a primary heat sink attached to said secondary heat sink,
a semiconductor chip capable of emitting light useful in curing composite materials,
said chip being mounted to said primary heat sink,
said chip being oriented so that light emitted by it appears to be emitted by said housing bottom.

[cl005] 5. A curing light as recited in claim 4 wherein the mass of said secondary heat sink is greater than the mass of said primary heat sink.

[cl006] 6. A curing light as recited in claim 4 further comprising a plurality of insulators to insulate said secondary heat sink from said wand.

[cl007] 7. A curing light as recited in claim 4 further comprising an air space between said elongate heat sink and said wand.

[cl008] 8. A curing light as recited in claim 7 further comprising at least one air vent on said wand.

[cl009] 9. A curing light as recited in claim 4 further comprising a thermoelectric cooler located on said secondary heat sink, said thermoelectric cooler serving to assist in heat dissipation.

[cl010] 10. A curing light as recited in claim 4 wherein said chip is selected from the group consisting of light emitting diode chips, laser chips, light emitting diode chip array, diode laser chips, diode laser chip array, surface emitting laser chips, edge emitting laser chips, and VCSEL chips.

[cl011] 11. A curing light comprising:
a housing having a top, a bottom, a left side and a right side,
a light emission control actuator which when actuated causes light to be emitted from the curing light, said light emission control actuator being located on said wand housing, said light emission control actuator being located on one of said housing left side and said housing right side,
a secondary heat sink capable of assisting in heat dissipation,
a primary heat sink attached to said secondary heat sink,
a semiconductor chip capable of emitting light useful in curing composite materials,
said chip being mounted to said primary heat sink,
said chip being oriented so that light emitted by it appears to be emitted by said housing bottom.

[cl012] 12. A curing light as recited in claim 11 wherein the mass of said secondary heat sink is greater than the mass of said primary heat sink.

[cl013] 13. A curing light as recited in claim 11 further comprising a plurality of insulators to insulate said secondary heat sink from said wand.

[cl014] 14. A curing light as recited in claim 11 further comprising an air space between said elongate heat sink and said wand.

[cl015] 15. A curing light as recited in claim 24 further comprising at least one air vent on said wand.

[cl016] 16. A curing light as recited in claim 11 further comprising a thermoelectric cooler located on said secondary heat sink, said thermoelectric cooler serving to assist in heat dissipation.

[cl017] 17. A curing light as recited in claim 11 wherein said chip is selected from the group consisting of light emitting diode chips, laser chips, light emitting diode chip array, diode laser chips, diode laser chip array, surface emitting laser chips, edge emitting laser chips, and VCSEL chips.